

**Playing Games and Asking Questions in a non-WEIRD sample:
Adapting and testing the Ambivalent Sexism Inventory in Western Burkina Faso**

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Published as:

Thomae, M., Martin, M. & Truong, T. (2014). Playing games and asking questions in a non-WEIRD sample: Adapting and testing the Ambivalent Sexism Inventory in Western Burkina Faso. *Evolutionary Behavioral Sciences*, Vol 8(3), 197-208.

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Published as:

Thomae, M., Martin, M. & Truong, T. (2014). Playing games and asking questions in a non-WEIRD sample: Adapting and testing the Ambivalent Sexism Inventory in Western Burkina Faso. *Evolutionary Behavioral Sciences*, Vol 8(3), 197-208.

Abstract

A recent debate across the social sciences questions the generalizability of research findings obtained from Western Educated Industrialised Rich and Democratic (WEIRD) samples to the rest of humanity at large. In this paper, we aim to adapt and test the Ambivalent Sexism Inventory (ASI, Glick & Fiske, 1996), on a small, non-WEIRD sample of men in Burkina Faso. Using a within-participants experimental design we further attempt to cross-validate this adapted ASI with a behavioural measure, namely the dictator game. Generally, the adapted version of the ASI does not perform well in terms of validity and reliability. In the dictator game, women generally receive a larger proportion of the stake than men. While the allocations to male recipients are not related to participants' levels of hostile or benevolent sexism, there is a significant negative correlation between benevolent sexism and allocations to female recipients.

Key words: WEIRD, ambivalent sexism, Burkina Faso, dictator game

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Playing Games and Asking Questions in a non-WEIRD sample:

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Western, Educated, Industrialised, Rich, and Democratic, in short WEIRD. This is how Henrich, Heine and Norenzayan (2010a, 2010b) describe most participant samples used in the experimental branches of the behavioural sciences. As Henrich et al. (2010a, 2010b) point out, the behavioural sciences aim to generalise findings from experimental studies to human behaviour and to the human condition in general. This paper aims to evaluate how mainstream psychological methods apply in a non-WEIRD context, using a non-WEIRD, hard to access participant sample. In this research we pilot the Ambivalent Sexism Inventory (ASI; Glick & Fiske, 1996, 1997), an inventory which is well-established in WEIRD populations, on a small sample of men in Burkina Faso. Thus, in contrast to Dressler, Borges, Balieiro and dos Santos (2005) and Ice and Yogo (2005), we do not aim to newly develop a culturally specific measure. Instead we attempt to adapt an existing (WEIRD) questionnaire for use in a novel, non-WEIRD context. The purpose of this is, at least in part, to test the generalizability of the *ambivalent sexism* construct to other human populations.

Ambivalent Sexism Theory and the Ambivalent Sexism Inventory

Ambivalent sexism theory (AST) assumes that sexism is a “special case of prejudice marked by a deep ambivalence, rather than a uniform antipathy, toward women” (Glick & Fiske, 1996, p. 491). Hostile sexism has been conceptualised as sexist antipathy, justifying male power, traditional gender roles, and men’s exploitation of women as sexual objects through derogatory characterisations (Glick & Fiske, 1997). In contrast, benevolent sexism is defined as “a set of interrelated attitudes toward women that are sexist in terms of viewing

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women stereotypically and in restricted roles but that are subjectively positive in feeling tone (for the perceiver) and also tend to elicit behaviours typically categorised as pro-social (e.g., helping) or intimacy-seeking (e.g., self-disclosure)” (Glick & Fiske, 1996, p. 491). In WEIRD samples, hostile and benevolent sexism tend to correlate, fulfilling the literal meaning of ambivalence: As attitudes which have “both valences” (Glick & Fiske, 1996, p. 494; see also Glick & Fiske, 2011, 2012). Yet, there are indications that these concepts do not correlate in non-student samples (e.g. Glick et al., 2000) and some non-US samples (e.g., Eckes & Six-Materna, 1999; Thomae, 2010). Two explanations have been put forward to explain these non-significant correlations: Firstly, in Glick et al. (2000), correlations between hostile and benevolent sexism often dropped for highly sexist participants but also for participants from highly sexist nations¹ (see Glick & Fiske, 2012). Secondly, with respect to the frequent lack of correlation between hostile and benevolent sexism in non-student samples, Glick and Fiske (1996) hypothesise that younger men (university students) may tend to adopt either generally sexist or egalitarian beliefs, depending on their socialization, whereas older, non-student men might have more experience in relationships with women. Thus, the strength of pre-existing sexist attitudes as well as the societal context and individual experiences appear to impact on the degree to which benevolent and hostile sexism work in tandem, as the ‘carrot’ and ‘stick’ of gender relations (Lee, Fiske & Glick, 2010; Glick & Fiske, 2011).

To measure ambivalent sexism, Glick and Fiske (1996) developed the Ambivalent Sexism Inventory (ASI). The ASI consists of a benevolent sexism and a hostile sexism subscale, composed of eleven items each. The hostile sexism subscale (HS) was constructed to tap dominative paternalism, competitive gender differentiation and heterosexual hostility.

¹ The four most sexist nations in Glick et al. (2000) were Cuba, Nigeria, South Africa and Botswana. Published as:

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In a similar vein, the benevolent sexism subscale (BS) was constructed to measure protective paternalism, complementary gender differentiation and heterosexual intimacy. Confirmatory factor analyses demonstrate that two separate latent factors best represent HS and BS.

However, the proposed three sub-factors were only consistently confirmed for BS (Glick and Fiske, 1996).

Glick et al. (2000) evaluated the ASI across nineteen nations² and concluded that hostile and benevolent sexism are cross-culturally coherent ideologies. Across nations, both forms of sexism were positively related to national indicators of gender inequality. Different versions of the ASI in other languages were developed by Eckes and Six-Materna (1999; German version) and Expósito, Moya and Glick (1998, Spanish version). To our knowledge, however, there is no published French translation of the ASI as of yet. Furthermore, the samples used in the abovementioned nineteen nations study (Glick et al., 2000) largely adopted non-representative student samples (see also Glick & Fiske, 2012), such that there is much less published evidence on how the ASI performs in non-student, non-Western samples.

Dictator Games as a Behavioural Measure of Altruism

Among a number of differences between WEIRD and non-WEIRD samples, Henrich et al. (2010a, 2010b) discuss cross-cultural differences in behaviour displayed in experimental economic games. The Dictator Game consists of a ‘one person decision task’ in which the players (dictators) distribute a stake between themselves and their recipient, while the recipient cannot reject the offer made by the dictator. Dictator Games have been

² These nineteen nations were: Australia, Belgium (students), Botswana, Brazil (students), Chile, Colombia (students), Cuba (students), England (students), Germany, Italy (students), Japan (students), Nigeria, Portugal (students), South Africa (students), South Korea, Spain (partly community sample), The Netherlands (90% from representative national sample), Turkey (students), United States (students)

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conceptualised as measures of ‘fairness’ between two anonymous people (see Bolton, Katok & Zwick, 1998; Henrich, Boyd, Bowles, Camerer, Fehr, Gintis & McElreath, 2001) but also as measures of altruism (e.g., Camerer & Fehr 2004). Marlowe (2004) found that the Hadza of Tanzania on average made much lower offers (Mean = 20%) than those made by participants from complex societies (see Camerer, 2003). Ensminger (2004) found offers of 31% in a Dictator Game among the Orma in Kenya. Even higher offers of around 45% were reported among the Wawa and the Mambila in Cameroon, who tailored their offers to the amount of contact they had with male versus female recipients (Thomae, Zeitlyn, Griffiths & Van Vugt, 2013). Henrich, Ensminger, McElreath, Barr, Barrett & Bolyanatz et al. (2010c) demonstrated differences in offers made and accepted in Ultimatum Games between WEIRD and non-WEIRD samples. In the Ultimatum Game each player receives a fixed amount of the (usually monetary) experimental stake, which s/he can share according to her/his liking with a second player, who in turn can accept or reject the offer. Allocators from industrialised societies tend to make offers of around 50% of the stake and recipients tend to reject low offers. This was, however, not the case for allocators and recipients from non-industrialised societies, who made and accepted much lower offers.

Research context and the culture and practices of the sample

Burkina Faso is a landlocked, predominantly rural country in West Africa, with slow economic development and a high dependency on international aid. Due to growing health problems, the average life expectancy at birth is only 54 years old (CIA, 2014). Burkina Faso is a low income country (The World Bank, 2014), with 46.7% of its population living under the poverty line (CIA, 2014). Gold and cotton are the main export products and the vast majority of people (90%) work in the agricultural sector. The literacy rate, defined as the percentage of people of the age of 15 or over who can read and write, is 28.7% (CIA, 2014).

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Bobo-Dioulasso has approximately 820 000 inhabitants and was established as the French colony Caudrelier in 1887, taking the name Bobo-Dioulasso in 1904. It is the second biggest city and the financial capital of Burkina Faso, and has one of the rare railway lines in the country. Its population consists of many ethnic groups but the name Bobo-Dioulasso refers to the two main groups in the city, the Bobo and the Jula. Many Ivoirians and Malians immigrate to Bobo-Dioulasso due to war and unrests in their respective countries. In addition, there is an influx from other Burkinabé, leaving their villages to find work.

We conducted our research with Bobo men in Kounima, Bobo-Dioulasso. Kounima belongs to the Dafra neighbourhood of Bobo-Dioulasso. The Bobo men in our sample are shopkeepers and farmers, living in Kounima. While our participants are unlikely to know all or even most other residents of Dafra, Kounima can be described as having the character of a village. However, this does not imply high levels of kinship, as, whilst principally being a Bobo village, Kounima contains several ethnic groups. We chose this sample because the Bobo men of Kounima differ in important aspects from WEIRD samples: Firstly, despite the urban environment of Bobo-Dioulasso, the sample can safely be considered non-Western, with low levels of education and literacy when compared to Western standards³. Burkina Faso as a whole is not an industrialised country. Although Burkina Faso is a democratic country, in contrast to the countries of origin of most WEIRD samples, it is a relatively young democracy (Lerebours Pigeonnière & Ménager, 2001).

There are strong food sharing norms in the Kounima community. If a stranger approaches a member of the community, telling them that s/he is hungry or just arrived in the

³ We did not consistently record education data for the sample. However, we have data on education for 16 participants, of whom three had not received any schooling, twelve had completed primary school and only one had attended secondary school.

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community, the approached person will feed the stranger. When giving sharing instructions, our research assistant used the word ‘tilan’, which means that somebody will give someone something, usually giving something that pleases the recipient. In Bobo culture, sharing is a very important concept and implies that the recipient will reciprocate the favour when the giver is in need, as the giver has rendered a service to the recipient.

The present research

Dictator Games have been used to measure positive behaviours (e.g. fairness, altruism, pro-social behaviour). Moreover, particularly benevolent sexism has been related to subjectively positive acts and feelings towards women (e.g., chivalry, Viki, Abrams & Hutchison, 2003; intimacy-seeking, helping, Glick & Fiske, 1996). Therefore, from a theoretical point of view, the outcomes of economic games are likely to be related to participants’ ASI scores. We hence used the outcomes of Dictator Games to cross-validate the ASI with a behavioural measure. To this end, a local, male research assistant in his mid-thirties played the Dictator Game with a sex-neutral, non-monetary stake: Sugar.

The Bobo primarily use sugar to make tea and gruel. Sugar is also used in the preparation of instant coffee and couscous. Sugar can be found in any small shop but is expensive. A kilogram of sugar costs around 600 CFA (\$1.21), while the very poorest earn less than 100 CFA (\$0.20) per day. Sugar is used every day by every household with the vast majority of families purchasing 'single-servings' of sugar for 25 to 50 CFA. Since tea is largely prepared by younger members of the community, sugar is not a commodity that is used by one sex more than the other. Using sugar, our aim was to find a stake which is largely sex neutral but

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is exchanged between the sexes⁴. In many households (> 95%), women stay at home, prepare meals and take care of the children. Many men do not want their wives to work outside the home. Except for certain traditional practices, women and men interact at church, at the market, in the neighbourhood and at parties. There are also shared activities such as baptisms and marriage ceremonies and girls and boys attend the same schools.

The aim of this paper is to combine the questionnaire data from the ASI with behavioural data from the Dictator Game to see if the data patterns follow what one would hypothesise from research with WEIRD samples (e.g., Viki et al. 2003). As outlined above, particularly benevolent sexism constitutes a subjectively positive ideology with regards to women and is, as we hope to demonstrate through the Dictator Game allocations, related to altruistic or pro-social behaviour. In contrast, hostile sexism constitutes a negative attitude toward women, often related to “punishment” of “bad” women. We therefore expect sugar allocations to female but not to male recipients to negatively correlate with hostile sexism. We also expect sugar allocations to female but not to male recipients to positively correlate with benevolent sexism. We present data from part-whole correlations and Cronbach’s Alpha for the HS and BS subscales. We will also establish contrasting group validity using t-tests with participants’ marital status (married vs. unmarried) as the test variable. We conducted Dictator Games to validate the ASI data since more common forms of questionnaire validation would have required including other questionnaire measures (Gandek & Ware, 1998; Heinberg, Thompson & Stormer, 1995).

⁴ Women use money at the market (both as buyers and sellers), and pay the school fees for their children. In a typical Bobo family, the woman makes the majority of the shopping decisions, but the man has the final say if he disagrees with a particular purchase.

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Method

Participants

We recruited 20 Bobo men from Kounima, Bobo-Dioulasso, Burkina Faso. We selected participants by asking a local research assistant to recruit at least 20 Bobo men. Our research assistant recruited these men via a close friend of his, whom the Kounima community trusted. Recruiting research participants via a trusted acquaintance was vital since many participants had heard rumours about an experiment conducted by white people in Nigeria, in which participants were sterilised with an injection. Whether or not such an experiment actually took place is uncertain, yet, our participants were familiar with the rumour and correspondingly suspicious. Our participants reported ages between 19 to 55 years ($M = 32.95$, $SD = 10.05$). While seven participants were unmarried (35%), 13 participants (65%) were married. None of the married participants was married to more than one wife. Five participants did not have children at the time of the study.

Design

This study adopted a within-participant research design: Every participant allocated sugar to a male and female member of the Bobo community in Kounima and completed the West African version of the ASI. While the independent variables were the sex of the recipient and marital status of the allocators, the dependent variables were hostile sexism and benevolent sexism. Moreover, we correlated hostile and benevolent sexism with the amount of sugar participants allocated to their male or female recipients.

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Materials and Preparatory Work

We purchased the sugar, plastic bags, rubber bands, a food scale and four plastic bowls on a local market. We filled two of these plastic bowls with 1kg of sugar each. Moreover, we used two identical plastic bowls into which participants would make their allocations. We determined the order of the allocations to female versus male recipients via a coin toss prior to running the experiment. To avoid priming effects, all participants made their sugar allocations before completing the ASI.

The ASI uses a 6-point Likert-type scale, ranging from 0 (strongly disagree) to 5 (strongly agree). The second author translated the Ambivalent Sexism Inventory into West African French and a different bilingual colleague translated the French ASI version back into English (see Brislin, 1976; Gandek & Ware, 1998). In consultation with this colleague and our research assistant, the second author further adapted the ASI to the local context. An example of such an adaptation is the item ‘A good woman should be set on a pedestal by her man’ [adapted: treated like a goddess by her man]. Finally, the second author discussed all ASI items and their meaning in detail with our research assistant. The adapted West African French version of the ASI is available in Appendix A.

Procedure

We collected all data on one day in September 2012 in a shack in a compound in Kounima, Bobo-Dioulasso. Our participants gathered inside the compound while waiting for their turn to participate. Participants entered the shack individually. To signal that the research assistant was ready for the next participant, he opened the curtain that cut off the

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shack from the centre of the compound. However, we ensured that during the sugar allocations, this curtain was always closed (see Koch & Normann, 2008).

For each participant, our research assistant took two plates, one of which contained the sugar and one plate into which to make the allocation. The research assistant told the participant that ‘This is 1kg of sugar. If you would like to give something to a Bobo woman [man] from Kounima, you put it into the empty plate. What you want to keep, that stays with you in plate I gave you.’ We did not ask follow-up questions on the sugar allocation, except in three cases where participants allocated all sugar to the female recipient and one case in which the participant made zero allocations.

Following the sugar allocations, our research assistant read the statements of the Ambivalent Sexism Inventory (ASI) and the possible answer categories to the participants. The study finished with demographic questions, including participants’ age, marital status and number of children. The research assistant probed all participants for what they suspected the purpose of our research was. None of the participants suspected the true purpose of our study with most participants stating that they did not know the aim of the research. We concluded the experiment by thanking the participants, providing them with 1kg of sugar and 100 CFA as payment for their efforts and asking them to not disclose any information about the study until the next day.

Results

Ambivalent Sexism

For HS we constructed a unit-weighted factor scale, following the procedure outlined in Figueredo, McKnight, McKnight and Sidani (2000). Part-whole correlations indicated that

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five of the HS items correlated significantly or marginally significantly with the overall scale (items 5, 7, 8, 9, 10 and 11; see Table 1). In an identical procedure for BS, seven BS items correlated significantly or marginally significantly with the overall BS scale (items 1, 2, 8, 9, 10, 11; see Table 2).

INSERT TABLE 1 ABOUT HERE

INSERT TABLE 2 ABOUT HERE

Using Cronbach's Alpha as an indicator of internal consistency for the HS and BS subscales yielded poor internal consistencies (HS: $\alpha = .42$, BS: $\alpha = .50$). According to Cortina (1993) and Nunnally and Bernstein (1994), the cut-off criterion for good internal consistency is around $\alpha = .70$, with Alpha levels between .60 and .70 being acceptable. In order to improve the internal consistencies, we selected all items which significantly or marginally significantly correlated with their respected overall scales (HS, BS) to be included in further calculations. This criterion led to the inclusion of five HS items ($\alpha = .69$; items 5, 7, 8, 9, 10) and seven BS items ($\alpha = .60$; items 1, 2, 4, 8, 9, 10, 11). All included items are marked with an asterisk in Appendix A.

We calculated composite scores for the HS and BS subscales for each participant by averaging the relevant items. The mean score of this reduced HS scale is $M = 3.40$ ($SD = 1.28$) the mean score of the reduced BS scale is $M = 4.04$ ($SD = 0.86$); the means of the subscales are not significantly different ($t(19) = -1.78$, $p = .092$). Moreover, these means are unusually high when compared to Western research⁵ (e.g., Glick & Fiske, 1996; Glick,

⁵ It should be noted that these means are not strictly comparable to those reported on other populations, as these measures are composed of a subset of the items of the full ASI. It is possible that the items that were excluded here generally elicit lower values and therefore reduce the overall average scale scores.

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Diebold, Bailey-Werner & Zhu, 1997), although they are similar to the means found by Glick et al. (2000) for Botswana, Nigeria and South Africa.

The correlation between HS and BS is non-significant and negative ($r(19) = -.11$, $p = .638$). The failure to establish a positive correlation is unusual when compared to WEIRD samples (see Glick & Fiske, 1996; Glick et al., 2000) but studies using samples other than university students have similarly obtained non-significant relationships between the HS and BS subscales (Eckes & Six-Materna, 1999: Teachers, Office workers; Thomae, 2010: former Soldiers). In addition, in Glick et al. (2000), male samples from Nigeria and South Africa, demonstrated subscale correlations close to zero. Similar to our findings presented here, research from Botswana indicated a weak negative correlation between HS and BS (see Glick et al., 2000). Yet, the sample sizes in these investigations were substantially bigger than the size of the sample in the data reported here.

An independent samples t-test compared participants' HS and BS scores by marital status. While unmarried men scored significantly lower in benevolent sexism ($M = 3.30$, $SD = 0.91$) than married men ($M = 4.40$, $SD = 0.61$; $t(18) = -2.97$, $p = .008$), this difference was not significant for hostile sexism (unmarried: $M = 2.97$, $SD = 1.05$; married: $M = 3.63$, $SD = 1.37$; $t(18) = -1.20$, $p = .284$).

Preliminary Analyses on the Sugar Allocations

In randomised sequences, all participants allocated sugar to an unnamed Bobo woman and an unnamed Bobo man. The mean sugar allocation to women is $M = 484.50g$ ($SD = 251.68$, $\sim 48\%$, $Min = 0g$, $Max = 1000g$) and the mean sugar allocation to men is $M = 357.00g$ ($SD = 114.94$, $\sim 36\%$, $Min = 0g$, $Max = 460g$). As a paired samples t-test indicates,

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these means are significantly different ($t(19) = -2.61, p = .017$). Figure 1 depicts the distribution of the sugar allocations to men and women respectively.

INSERT FIGURE 1 HERE

Ambivalent Sexism and Sugar Allocations

Correlations did not yield the predicted patterns. HS correlated weakly negatively with the sugar allocations made to male recipients ($r(19) = -.07, p = .776$) and was practically zero for female recipients ($r(19) = .04, p = .856$). Moreover, there was no link between BS and the sugar allocations to male recipients ($r(19) = -.02, p = .944$) while there was an unexpected significant negative correlation between BS and sugar allocations to female recipients ($r(19) = -.50, p = .026$). In more general terms, this latter finding indicates that, in contrast to what we would expect from the existing research on benevolent sexism and its relationship to pro-social behaviour toward women, the findings here indicate that benevolent sexism might *reduce* rather than *increase* pro-social acts toward women. Finally, there was a significant positive correlation between the sugar allocations made to male versus female recipients ($r(19) = .50, p = .025$).

Follow-up questions

We did not conduct follow-up interviews with the participants about their sugar allocations. However, we asked three participants who had made an allocation of all sugar to the female recipient and one participant who had made zero allocations of the sugar to both the female and the male recipient to explain their allocations. The motives of the former three participants differed vastly in what can be described as these participants' underlying gender attitudes: While two participants allocated all sugar to the female recipient so she can cook or

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make tea for them, the third participant allocated all sugar to the female recipient stating that he respected all women as if they were his mother and that he would always give 100% to a female even if not getting anything in return.

We also interviewed a fourth participant, who had kept all sugar. This participant justified his choice stating that he has a big family and prefers distributing the sugar amongst his brothers and sisters. He also stated that he would share the sugar with a female but only if this female was his wife. We asked him to make an allocation as if the female recipient was his wife and he shared 490g with her.

Discussion

This research aimed to evaluate how mainstream psychological research methods fare when applied to a non-WEIRD context, using a non-WEIRD, hard to access participant sample (see Henrich et al., 2010a, 2010b). In this context, the ASI performed quite poorly and by no means as well as in WEIRD contexts. Part-whole correlations indicated that neither the HS nor the BS subscales measure single constructs in our sample. Moreover, only when items were excluded from both subscales did we achieve acceptable internal consistencies.

Our attempt to validate the ASI using behavioural measures of altruism, as operationalized in the Dictator Games, did not converge with what would have been expected in WEIRD research. Yet, no previous WEIRD research has demonstrated a link between HS and BS scores and dictator game giving. Therefore, our operationalization is as much a test of the theory as it is a validation attempt and the lack of findings cannot be interpreted as a difference between WEIRD and non-WEIRD samples. Furthermore, given the low sample size, we have limited statistical power to test our hypotheses (see Cohen, 1988) and any interpretation of our data has to be taken with extreme caution. In addition, the practical

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significance of our findings is uncertain, as correlation coefficients may fluctuate until sufficiently high sample sizes stabilize them.

There are, however, some interesting findings in support of our research questions. Similar to findings of other non-US, non-student research on the ASI (see Glick et al., 2000; Eckes & Six-Materna, 1999), hostile and benevolent sexism were not significantly correlated in our research. As outlined in the introduction, there are several possible reasons for this finding: Our sample stems from a culture that might potentially be quite traditional and – although never empirically assessed – might have quite high levels of hostile and benevolent sexism on the national level (see Glick et al., 2000; Glick & Fiske, 2012). Furthermore, our sample consisted of older, non-student men, for which Glick and Fiske (1996) hypothesised that they may have more experiences of relationships with women, thus, may have adopted a broader view on gender attitudes, beyond a simple dichotomy of egalitarian versus sexist beliefs. Finally, as we demonstrated in the results, the means of the HS and BS scales are high when compared to WEIRD samples, which in Glick et al.'s (2000) research was linked to correlations close to zero (Cuba, South Africa, Nigeria) or negative correlations (Botswana) between the two ASI subscales.

This research has several further limitations. For example, participants had difficulties grasping the concept of a Likert scale. Ice and Yogo (2005) used dichotomous response formats to avoid this problem but argue that such an approach might result in misleading factor analytical findings (see Nunnally & Bernstein, 1994). In our own research it might have been better to present participants with a binary agree versus disagree scoring system. Yet, other research successfully applied Likert-type scales in research with samples low in literacy (Dressler & Bindon, 2000) or developed ways to implement Likert-type scales by

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using traditional games to measure attitudes (Barker, 1979; Bwambale, Moyer, Komakech, Wabwire-Mangen & Lori, 2013). Future research should replicate our findings using one of these strategies instead.

In line with earlier research, our research used a non-monetary stake (Alvard, 2004; Marlowe, 2004) when playing the Dictator Game. Similar to our own research (Thomae et al., 2013) but in contrast to the findings by Henrich et al. (2010c) the participants in the present study made allocations of close to 50% to female recipients but lower allocations to male recipients. Bolton et al. (1998) found that allocators sometimes discriminate when allocating a stake to multiple recipients. For example, it is possible that allocations to female recipients were viewed as a form of costly signalling and could indicate a display of altruism in order to impress a potential mate (Iredale, 2009). Alternatively, it is possible that sugar, in contrast to our reasoning above, is perceived as a good to be handled by women rather than men but to the advantage of the men for whom these women cook.

Similar to some of the published research (Camerer, 2003; Thomae et al., 2013), the dictators in our study overall allocated more of the stake (36% to male recipients, 48% to female recipients) than what would be expected from other non-WEIRD samples (Ensminger, 2004; Marlowe, 2004). Three possible explanations might account for this finding: Kagan and Madsen (1971, 1972) found cultural differences among American and Mexican children's level in cooperation and competition orientation such that American children were more likely to compete, while Mexican children were more likely to cooperate. These authors argue that Mexican children act more collectively, adopting a 'we' mentality, than American children, who appear to adopt an individualistic, 'I' orientation. Thus, the village character of Kounima might have contributed to a more collectivist mind-set in our participants.

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Relatedly, there is evidence that poorer people adapt to their more difficult environments by displaying greater pro-social behaviour, including more generosity and charitability (Piff, Kraus, Côté, Cheng & Keltner, 2010). Thus, the high levels of poverty to which the sample adopted in our research is exposed might explain the heightened cooperation in the games. A third alternative explanation might lie in the choice of the experimental stake. The present research as well as our previous research (Thomae et al., 2013) used non-monetary stakes. Thus, in contrast to the findings by Ensminger (2004) and Marlowe (2004) who played in non-WEIRD communities using money, it is possible that non-WEIRD samples distribute a non-monetary stake similarly to the way WEIRD samples distribute a monetary stake. This argument is further corroborated by the findings of Alvard (2004), who played ultimatum games using packs of cigarettes as a stake and obtaining a median offer of 50%. Future research might wish to follow up on this interesting possibility.

The evidence provided in this paper is mixed. While it seems generally possible to adapt WEIRD research methods from the experimental branches of the behavioural sciences (Henrich et al., 2010a, 2010b) to non-WEIRD samples and contexts, there are obstacles along the way. Recruiting samples from hard to reach populations might not only be costly and difficult, but also invoke fears in these samples. This research piloted the Ambivalent Sexism Inventory on a small sample of Bobo men in Burkina Faso. One of the main outcomes of this research is the development of a West African French version of the ASI. Yet, more work is needed to adapt this WEIRD inventory to novel, non-WEIRD contexts.

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Table 1

Part-whole correlations for Hostile Sexism

z-standardised HS items	Hostile Sexism Scale (Long Form)	<i>p</i>	Hostile Sexism Scale (Short Form)	<i>p</i>
HS1	.134	.572	-	-
HS2	.072	.762	-	-
HS3	.055	.819	-	-
HS4	.129	.587	-	-
HS5	.601	.005	.535	.015
HS6	.248	.292	-	-
HS7	.785	.000	.753	.000
HS8	.722	.000	.766	.000
HS9	.558	.011	.639	.002
HS10	.470	.037	.625	.003
HS11	.434	.056	-	-

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Table 2

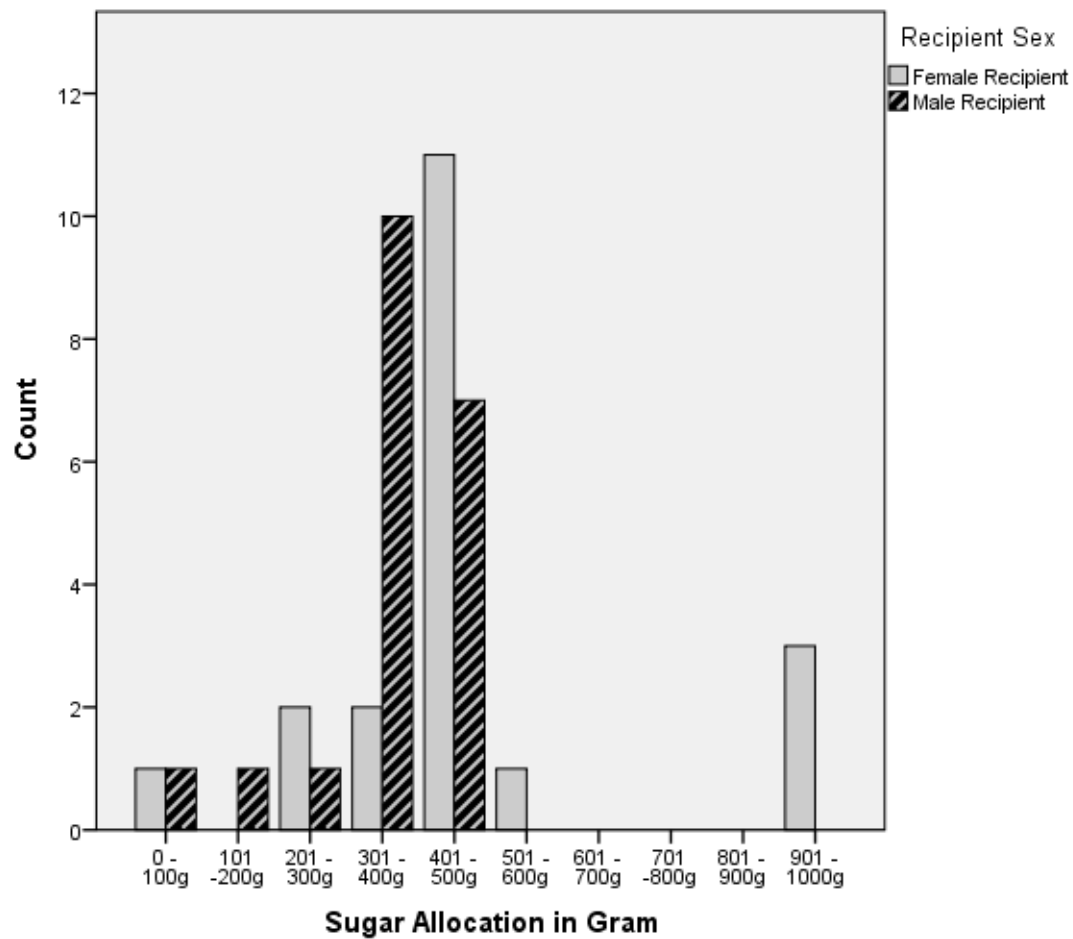
Part-whole correlations for Benevolent Sexism

z-standardised BS items	Benevolent Sexism Scale (Long Form)	<i>p</i>	Benevolent Sexism Scale (Short Form)	<i>p</i>
BS1	.630	.003	.630	.003
BS2	.432	.057	.309	.185
BS3	.238	.312	-	-
BS4	.440	.052	.541	.014
BS5	.370	.108	-	-
BS6	.277	.237	-	-
BS7	.090	.705	-	-
BS8	.636	.003	.597	.005
BS9	.416	.068	.569	.009
BS10	.402	.079	.489	.029
BS11	.541	.014	.641	.002

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Figure 1. Distribution of sugar allocations by recipient sex



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Appendix A

1	*BS1(I)	Peu importe son degré d'accomplissement, un homme n'est pas véritablement complet en tant que personne s'il ne possède pas l'amour d'une femme.	No matter how accomplished he is, a man is not truly complete as a person unless he has the love of a woman
2	HS1	De nombreuses femmes sont en vérité à la recherche de faveurs particulières, telles que des politiques d'embauche qui les favorisent aux dépens des hommes, sous couvert de demande d' 'égalité'	Many women are actually seeking special favors, such as hiring policies that favour them over men, under the guise of asking for 'equality'
3	*BS2(P)	Lors d'une catastrophe, les femmes ne doivent pas nécessairement être secourues avant les hommes. (INVERSÉ)	In a disaster, women ought not necessarily to be rescued before men (REVERSED)
4	HS2	La plupart des femmes interprètent des remarques ou des actes innocents comme sexistes.	Most women interpret innocent remarks or acts as being sexist
5	HS3	Les femmes s'offensent trop facilement.	Women are too easily offended
6	BS3(I)	Les gens sont souvent réellement heureux dans la vie sans être dans une relation amoureuse avec un membre de l'autre sexe. (INVERSÉ)	People are often truly happy in life without being romantically involved with a member of the other sex (REVERSED)
7	HS4	Les féministes ne cherchent pas à ce que les femmes aient plus de pouvoir que les hommes. (INVERSÉ)	Feminists are not seeking for women to have more power than men (REVERSED)
8	*BS4(G)	De nombreuses femmes ont une qualité de pureté que peu d'hommes possèdent.	Many women have a quality of purity that few men possess
9	BS5(P)	Les femmes devraient être aimées et protégées par les hommes.	Women should be cherished and protected by men
10	*HS5	La plupart des femmes ne parviennent pas à apprécier pleinement ce que les hommes font pour elles.	Most women fail to appreciate fully all that men do for them
11	HS6	Les femmes cherchent à obtenir du pouvoir en prenant le contrôle sur les hommes.	Women seek to gain power by getting control over men
12	BS6(I)	Chaque homme doit avoir une femme qu'il adore.	Every man ought to have a woman whom he adores
13	BS7(I)	Les hommes sont complets sans les femmes. (INVERSÉ)	Men are complete without women (REVERSED)
14	*HS 7	Les femmes exagèrent leurs problèmes au travail.	Women exaggerate problems they have at work

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15	*HS8	Une fois qu'une femme obtient d'un homme qu'il s'engage à elle, elle tente généralement de trop le contrôler.	Once a woman gets a man to commit to her, she usually tries to put him on a tight leash [adapted: control him too much]
16	*HS9	Lorsque les femmes perdent face aux hommes dans une compétition loyale, elles se plaignent habituellement de souffrir de discrimination.	When women lose to men in a fair competition, they typically complain about being discriminated against
17	*BS8(P)	Une femme bonne devrait être traitée comme une déesse par son homme.	A good woman should be set on a pedestal by her man [adapted: treated like a goddess by her man]
18	*HS10	Il y a en réalité très peu de femmes qui prennent plaisir à se moquer des hommes en prétendant être sexuellement disponibles et en refusant ensuite les avances masculines. (INVERSÉ)	There are actually very few women who get a kick out of teasing men by seeming sexually available and then refusing male advances (REVERSED)
19	*BS9(G)	Comparées aux hommes, les femmes ont tendance à avoir une sensibilité morale supérieure.	Women, compared to men, tend to have a superior moral sensibility
20	*BS10(P)	Les hommes devraient être prêts à sacrifier leur propre bien-être afin de subvenir aux besoins financiers des femmes dans leurs vies.	Men should be willing to sacrifice their own wellbeing in order to provide financially for the women in their lives
21	HS11	Les féministes ont des exigences tout à fait raisonnables envers les hommes. (INVERSÉ)	Feminists are making entirely reasonable demands of men (REVERSED)
22	*BS11(G)	Les femmes, en comparaison des hommes, ont tendance à avoir un sens plus raffiné de la culture et du bon goût.	Women, as compared to men, tend to have a more refined sense of culture and good taste

Note. HS = Hostile Sexism, BS = Benevolent Sexism, (P) = Protective Paternalism, (G) = Complementary Gender Differentiation, (I) = Heterosexual Intimacy,

(REVERSED) = reverse-scored item, * = Included in the HS and BS composite scores in the paper

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